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NOTIFICATION OF ELECTION

(PCT Rule 61.2)

From the INTERNATIONAL BUREAU

To:

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Applicant ANG, Chip, Hong et al	

1. The designated Office is hereby notified of its election made:

☒ in the demand filed with the International Preliminary Examining Authority on:
 13 October 2000 (13.10.00)

☐ in a notice effecting later election filed with the International Bureau on:

2. The election ☒ was
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The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland	Authorized officer Pascal Piriou
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PATENT COOPERATION TREATY

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NOTIFICATION CONCERNING
AMENDMENTS OF THE CLAIMS(PCT Rule 62 and
Administrative Instructions, Section 417)

From the INTERNATIONAL BUREAU

To:

Mrs I. Diallo
European Patent Office
Erhardtstrasse 27
D-80331 Munich
ALLEMAGNE

Date of mailing (day/month/year)

22 November 2000 (22.11.00)

in its capacity as International Preliminary Examining Authority

International application No.

PCT/GB00/00710

International filing date (day/month/year)

29 February 2000 (29.02.00)

Applicant

NATIONAL UNIVERSITY OF SINGAPORE et al

The International Bureau hereby transmits a copy of the amendments to the claims under Article 19 together with any accompanying statement (Rule 62).

The International Bureau of WIPO
34, chemin des Colombettes
1211 Geneva 20, Switzerland

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Authorized officer

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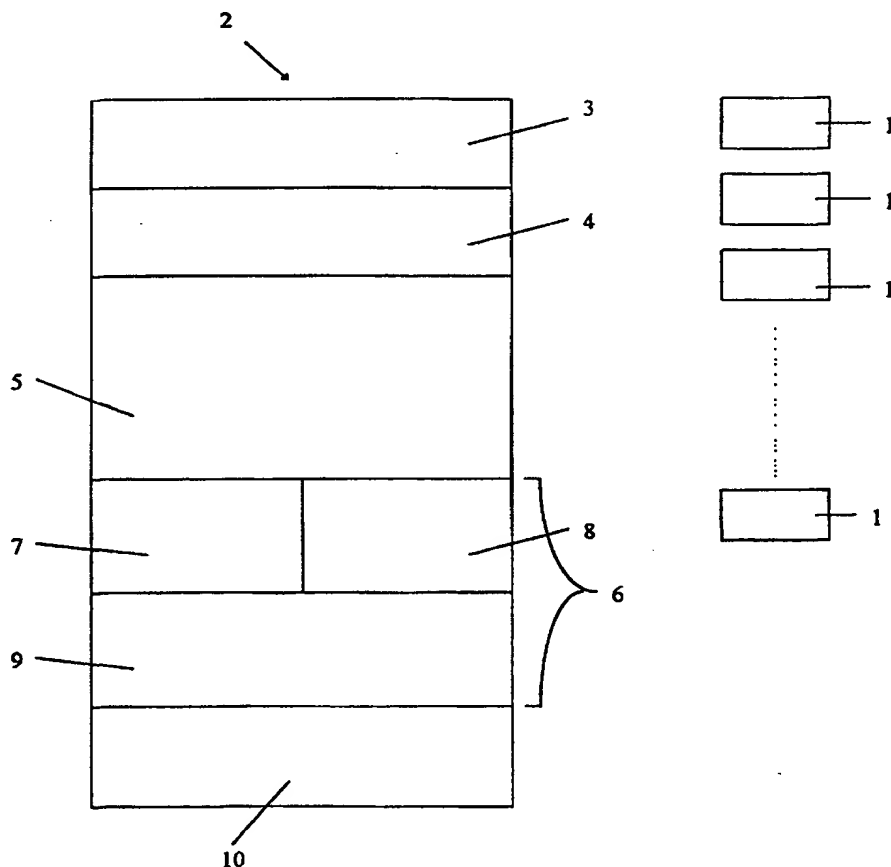
INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

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(21) International Application Number: PCT/GB00/00710		(74) Agent: HOARTON, Lloyd, Douglas, Charles; Forrester Ketley & Co., Forrester House, 52 Bounds Green Road, London N11 2EY (GB). (81) Designated States: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).	
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(54) Title: AN EDUCATIONAL TOOL, ENTERTAINMENT SYSTEM OR SEARCH TOOL

(57) Abstract

An educational tool, search tool or entertainment system comprising one or more identification means (1) each associated with an item, a reader (2) for detecting and interrogating the identification means (1) to identify the item associated therewith and processing means (4) operable to react in a predetermined manner to the identification of a detected item. There is also provided a method of providing entertainment or educational information or searching comprising the steps of: providing one or more items with detectable identification means (1); detecting an item; interrogating the item and identifying the item from the identification means (1); and providing information in response to the identification of an item.



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“An educational tool, entertainment system or search tool”

THIS INVENTION relates to an educational tool, entertainment system or search tool for domestic or industrial applications. More particularly, the invention involves the application of automatic identification systems such as radio frequency (RF) identification, barcodes, RF/microwave/millimetrewave transceivers, sonic, ultrasonic and optical (including infrared and ultraviolet) transmission systems in educational tools, search tools and entertainment systems such as themed areas or toys.

The ability to impart educational information or provide entertainment can be enhanced by introducing a level of interactivity between an individual who is to be educated or entertained and the educator or entertainer. However, such an enhanced educational or entertainment experience has hitherto only been possible or readily achieved using human educators or entertainers.

It is an object of the present invention to overcome this problem.

Accordingly, one aspect of the present invention provides an educational tool, search tool or entertainment system comprising one or more identification means each associated with an item, a reader for detecting and interrogating the identification means to identify the item associated therewith and processing means operable to react in a predetermined manner to the identification of a detected item.

A further aspect of the present invention provides a method of providing entertainment or educational information or searching comprising the steps of: providing one or more items with detectable identification means; detecting an

item; interrogating the item and identifying the item from the identification means; and providing information in response to the identification of an item.

A further object of the present invention is to seek to provide a search tool for locating tagged items in a domestic or industrial environment.

In order that the present invention may be more readily understood, it will now be described with reference to the accompanying figure which shows a schematic illustration of a system embodying the present invention.

Referring to Figure 1, a system embodying the present invention consists of a number of identification labels 1 each associated with a particular item and a reader 2 for detecting and interrogating the labels to identify the item associated therewith.

The identification labels 1 may be but are not limited to:

1. Passive/active radio frequency transponders operating in the near field / far field region.
2. Self-contained RF (including microwave and millimetrewave), optical (including infrared and ultraviolet) or sonar transmission systems with/without on/off functions.
3. Barcodes.
4. Wired / contact transmission systems.

5. Any other automatic identification system transponders. These identification labels may be programmable or non-programmable using its reader or a stand alone programmer. The label may contain information pertaining to the identification of the item or description of the item.

The reader 2 may be but is not limited to the following components: a reading device 3 capable of reading the information from the chosen identification labels 1 transponders; an information processing unit 4; an information storage unit 5; and a user interface 6. These different components may be separate or some of the functions may be integrated to form a compact unit. In its simplest form, the reader 2 consists solely of the device for reading identification labels 1 and the function of the other components can be carried out by an associated device such as a personal computer.

The information processing unit 4 receives information from the reading device and processes the information to execute the functions defined in software/firmware present in the information processing unit 5 and pass the resultant information to the user interface 6. The reader 2 may also receive instructions through the user interface 6 and pass such instructions on to the or each label 1 to program one or more of the labels in a specified manner.

The information passed to the user interface may, for example, be information held in the information held in the information storage unit 5 which may be configured as a memory including a look-up table. Thus, if a label 1 is identified as being "tag 3", then the look-up table in the unit 5 is instructed by the processing unit 4 to output information concerning "tag 3" to the user interface 6.

The user interface 6 may include but is not restricted to a keyboard 9, a video display 7 and an audio device 8 to display or announce the information as required in the chosen application. The user interface 6 can accept data input through the keyboard interface 9. The user interface may also be provided with a standard P.C. interface. The reader 2 may also include a response activation unit 10. The response unit 10 incorporates a mechanism operable to react in a predetermined manner to information from the information processing unit. The mechanism may be mechanical in nature but can also emit a visual or audible signal. The response unit 10 need not necessarily be part of the reader 2 but can be associated therewith. For example, the response unit 10 could be located within a toy as part of a mechanism in the toy, the reader 2 being capable of sending a signal to the response unit 10 to activate the response unit 10.

In one embodiment of the system, a plurality of items are each tagged with a respective label 1. When brought to the reader 2, the reader 2 detects the label and reads identification information held on the label and announces, through the audio device 8, the name of the item, the name of the item being the information corresponding to the item tagged with that label 1.

In a second embodiment, the reader 2 can give a brief description of the item tagged with the label. The reader 2 can also display such information if equipped with a video display 7.

In a third embodiment, the reader 2 can be configured in the form of a kiddy teacher toy (i.e. kiddy Professor) and announce or display the identity or type of an item or can announce that there is more than one item.

In a fourth embodiment, the reader 2 can count and announce and/or display the number or items. This can also be used as a tutor to teach spelling by asking children to bring letters (each of which is tagged with a separate label 1) one by one in the correct order and giving necessary instructions.

In a fifth embodiment, the parents or a teacher can program the labels 1 and the reader 2 suitably and attach the labels to various household items and give a portable reader 2 to a child to explore by finding, identifying and learning about the household items.

In a sixth embodiment, the reader 2 is in the form of or contained within a toy and the labels 1 can be used as a switch to direct the reader 2 to activate an appropriate mechanism in the response activation unit 10 in the toy.

In a seventh embodiment, household or industrial items are tagged with labels having identification codes specific to each item. Cross-referencing information linking a particular item to a particular identification code held on a label is stored in the information storage unit 5 of the reader 2. A user, who wishes to search for and locate an item, can enter a desired tagged item or identification code through the user interface unit 6 and move around with the reader 2 to obtain responses from tagged items. Once the reader 2 detects the identification code of the item being searched for, the reader 2 will provide response via the response activation unit 10. Thus, the system provides a search tool with which a user can search for and locate tagged items in both domestic and industrial environments.

In an eighth embodiment, the reader includes one or more dedicated counters which are incremented each time a particular label is read by the reader 2. Thus, a count of the number of times a particular label 1 has been

read (by the reader) is held by the reader 2. The response of the reader can vary according to the number of times the label 1 has been read. For example, a label 1 is attached to or hidden in a toy shark and a reader 2 is hidden in or attached to a kiddy teacher. When the shark is first brought into the reading field of the teacher, the teacher will announce "It lives in the sea". A counter in the reader 2 will be incremented to show that the label 1 has been read once. The next time the toy shark is brought into the reading field of the teacher, the teacher will announce "It is greyish white in colour". The counter will be incremented again to show that the label 1 has been read twice. The next time the shark is brought near the teacher again, the teacher will announce "It will attack human". The counter will be incremented to show that the label 1 has been read three times. Thus, the responses from the reader 2 can be programmed to vary in accordance with the number of times that a particular label 1 has been read so that different information is imported to a user each time.

In another embodiment, the information concerning the number of times a particular label 1 had been read can be stored in the label 1 instead of the reader 2.

This concept can be extended to further innovative applications using the systems. The labels 1 can be used to tag any items of interest. When the label is within the reading range, the reader will identify the label. The reader 2 can then: announce the name of the item; pronounce the name of the item; display any other relevant information of the item; and detect and count the total number of labels 1 within the reading range.

The system can be used as an educational tool for children. The labels 1 can be attached to or contained in small soft toys. The information held in the

memory 5 of the reader 2 on that particular toy is made available when the label 1 is detected and identified by the reader 2. The reader 2 can be attached to or contained in a big toy (i.e. a kiddy Professor). The child can then take toys of their choice towards the reader 2. Once within reading range, the reader 2 will announce and/or display the relevant information of that toy. When more than one toy is brought near the reader 2, the reader 2 will announce and/or display the total number of toys within its reading range. In this way, the child will learn to pronounce, spell and count. The reader 2 can also be set such that there is a revision test for the child. The reader 2 will announce and/or display the information of a toy that it previously detected and the child has to bring the relevant toy to the reader 2. The reader will indicate if the child answers correctly. Alternatively, or in addition thereto, the reader 2 will announce the name of the toy and the child will be asked to spell.

In another embodiment, a portable reader 2 is provided and a user can attach or contain a label 1 in any item of their interest. The information on the item tagged by the label 1 is then entered into the memory 5 by the user interface 6, thereby updating in the reader 2. With the portable reader 2, the user can move the reader 2 towards any tagged item. The reader 2 will then announce and/or display the information on any item tagged by a label 1 once the label 1 has been detected. This application is suitable for a child to learn about new things in its environment (i.e. the names of different items in a household). This application may also serve as an educational tool for adults, for example, electronically labelling the different trees in a botanical garden will enable adults to learn more about the trees.

The labels 1 can be used to act as means to activate an "ON" or "OFF" switch in the reader 2. In this case, a toy having an electrical, mechanical, video or audio mechanism will incorporate the reader 2. Once an appropriate

label 1 is brought into the reading range of the reader 2, the toy will switch on or off a pre-designated mechanism. This application finds use in educational toys for children. For example, to illustrate an "ON" switch label, a toy carrot can contain a label 1 and a toy rabbit can contain the reader 2. When the toy carrot is brought into the reading range of the toy rabbit, a mechanical mechanism is switched on within the toy rabbit by the reader 2 and the toy rabbit will dance happily. Otherwise, it will remain stationary. In another example to illustrate an "OFF" switch label 1, the label is attached to or contained in a toy baby and the reader 2 in a toy mother. When the body is outside of the reading range of the toy mother, the toy mother will cry and shout "where is my baby". However, when the toy baby is brought within the reading range of the toy mother, the toy mother will remain silent. The switch can also be used in the entertainment industry. For example, in a themed area such as a haunted house, visitors entering the house would each be tagged with a unique label, the label only activating certain haunted mechanical figures containing readers 2 in the house. Thus, every individual can undergo a unique experience in the house.

CLAIMS:

1. An educational tool, search tool or entertainment system comprising one or more identification means each associated with an item, a reader for detecting and interrogating the identification means to identify the item associated therewith and processing means operable to react in a predetermined manner to the identification of a detected item.
2. A system according to Claim 1, wherein the identification means comprises machine-readable identification information.
3. A system according to Claim 2, wherein the machine-readable identification information is held on a radio frequency transponder.
4. A system according to Claim 3, wherein the radio frequency transponder is a passive radio frequency transponder.
5. A system according to Claim 3, wherein the radio frequency transponder is an active radio frequency transponder.
6. A system according to Claim 2, wherein the machine-readable identification information is held on an optically (including infrared and ultraviolet) interrogatable medium.
7. A system according to Claim 6, wherein the medium is a barcode.
8. A system according to Claim 2, wherein the machine-readable identification information is held on a wired or contact transmitter.

9. A system according to Claim 2, wherein the machine-readable identification information is held in a sonic or ultrasonic transmitter.
10. A system according to Claim 2, wherein the machine-readable identification information is held in an RF (including microwave and millimetrewave) transceiver.
11. A system according to any preceding claim, wherein the machine-readable identification information is programmable.
12. A system according to Claim 11, wherein programming means are provided to programme the machine-readable identification information for the identification means.
13. A system according to any preceding claim, wherein the reader comprises means to read machine-readable identification information.
14. A system according to any preceding claim, wherein the reader incorporates the processing means.
15. A system according to any preceding claim, wherein the reader incorporates a data storage unit.
16. A system according to Claim 14, wherein the processing means includes software to cause the system to react in a different manner to the identification of respective items.
17. A system according to any preceding claim, wherein the reader incorporates a user interface.

18. A system according to Claim 17, wherein the user interface includes a video display operable to display information based on the identity of a detected item.
19. A system according to Claim 17 or 18, wherein the user interface includes an audio processing unit operable to announce or announce information based on the identity of a detected item.
20. A system according to any one of Claims 17 to 19, wherein the user interface includes a data input device.
21. A system according to any preceding claim, wherein a personal computer is associated with the reader to provide the processing means and data storage in addition to or instead of the reader.
22. A system according to any preceding claim, wherein the reader is a portable reader.
23. A system according to any preceding claim, wherein the reader is a toy.
24. A system according to any preceding claim, wherein the identification means is provided in the form of a label attachable to an item.
25. A system according to any preceding claim, wherein the identification means is locatable in an item.
26. A system according to any preceding claim, wherein the reader includes a response activation unit which is operable upon detection of an item.

27. A system according to any one of Claims 1 to 24, wherein the reader is operable to activate a response activation unit associated with the reader upon detection of an item.

28. A system according to any preceding claim, wherein the reader is operable to count the number of items which are detectable by the reader and provide the count information to a user interface associated with the reader.

29. A system according to Claim 12, wherein the reader includes the programming means.

30. A system according to any preceding claim, wherein the item is a person.

31. A system according to any preceding claim, wherein the reader and/or the identification means includes a counter incrementable each time a particular identification means is interrogated by the reader to provide information concerning the number of times a particular identification means has been interrogated by the reader.

32. A system according to Claim 31, wherein a response of the reader is varied in dependency upon the number of times a particular identification means has been interrogated by the reader.

33. A method of providing entertainment or educational information or searching comprising the steps of: providing one or more items with detectable identification means; detecting an item; interrogating the item and identifying

the item from the identification means; and providing information in response to the identification of an item.

34. A method according to Claim 33, wherein the step of providing information comprises providing a signal operable to control a mechanism.

35. A method according to Claim 33 or 34, wherein a reader is operable to interrogate the item and identify the item from the identification means, the method comprising the further step of programming the reader to search for a specific item.

AMENDED CLAIMS

[received by the International Bureau on 30 June 2000 (30.06.00);
original claims 1-35 replaced by amended claims 1-37 (5 pages)]

1. An educational tool, search tool or entertainment system comprising one or more identification means each associated with an item, the identification means comprising programmable machine-readable identification information, a reader for detecting and interrogating the identification means to identify the item associated therewith and processing means operable to react in a predetermined manner to the identification of a detected item.
2. A system according to Claim 1, wherein the machine-readable identification information is held on a radio frequency transponder.
3. A system according to Claim 2, wherein the radio frequency transponder is a passive radio frequency transponder.
4. A system according to Claim 2, wherein the radio frequency transponder is an active radio frequency transponder.
5. A system according to any preceding claim, wherein the machine-readable identification information is held on an optically (including infrared and ultraviolet) interrogatable medium.
6. A system according to any preceding claim, wherein the machine-readable identification information is held in a sonic or ultrasonic transmitter.
7. A system according to any preceding claim, wherein the machine-readable identification information is held in an RF (including microwave and millimetrewave) transceiver.

8. A system according to any preceding claim, wherein programming means are provided to programme the machine-readable identification information for the identification means.

9. A system according to Claim 8, wherein the programming means are operable to programme the machine-readable identification information for more than one identification means.

10. A system according to any preceding claim, wherein the reader comprises means to read machine-readable identification information.

11. A system according to any preceding claim, wherein the reader incorporates the processing means.

12. A system according to any preceding claim, wherein the reader incorporates a data storage unit.

13. A system according to Claim 11, wherein the processing means includes software to cause the system to react in a different manner to the identification of respective items.

14. A system according to Claim 10, comprising a plurality of identification means, wherein the reader is operable to detect more than one identification means.

15. A system according to Claim 14 wherein the processing means includes software to cause the system to react in a predetermined manner to the detection of more than one identification means.

16. A system according to Claim 14 or 15, wherein the reader is operable to count the number of identification means detectable thereby.

17. A system according to Claim 16, wherein the processing means includes software to cause the system to react in a manner that is dependent upon the number of identification means detected.

18. A system according to any one of Claims 14 to 16, wherein the reader is operable to establish the order in which multiple identification means are detected.

19. A system according to Claim 18, wherein the processing means includes software to cause the system to react in a predetermined manner to the order in which multiple identification means are detected.

20. A system according to any preceding claim, wherein the reader incorporates a user interface.

21. A system according to Claim 20, wherein the user interface includes a video display operable to display information based on the identity of a detected item.

22. A system according to Claim 20 or 21, wherein the user interface includes an audio processing unit operable to announce or announce information based on the identity of a detected item.

23. A system according to any one of Claims 20 to 22, wherein the user interface includes a data input device.

24. A system according to any preceding claim, wherein a personal computer is associated with the reader to provide the processing means and data storage in addition to or instead of the reader.
25. A system according to any preceding claim, wherein the reader is a portable reader.
26. A system according to any preceding claim, wherein the reader is a toy.
27. A system according to any preceding claim, wherein the identification means is provided in the form of a label attachable to an item.
28. A system according to any preceding claim, wherein the identification means is locatable in an item.
29. A system according to any preceding claim, wherein the reader includes a response activation unit which is operable upon detection of an item.
30. A system according to any one of Claims 1 to 28, wherein the reader is operable to activate a response activation unit associated with the reader upon detection of an item.
31. A system according to Claim 8 or 9, wherein the reader includes the programming means.
32. A system according to any preceding claim, wherein the item is a person.

33. A system according to any preceding claim, wherein the reader and/or the identification means includes a counter incrementable each time a particular identification means is interrogated by the reader to provide information concerning the number of times a particular identification means has been interrogated by the reader.

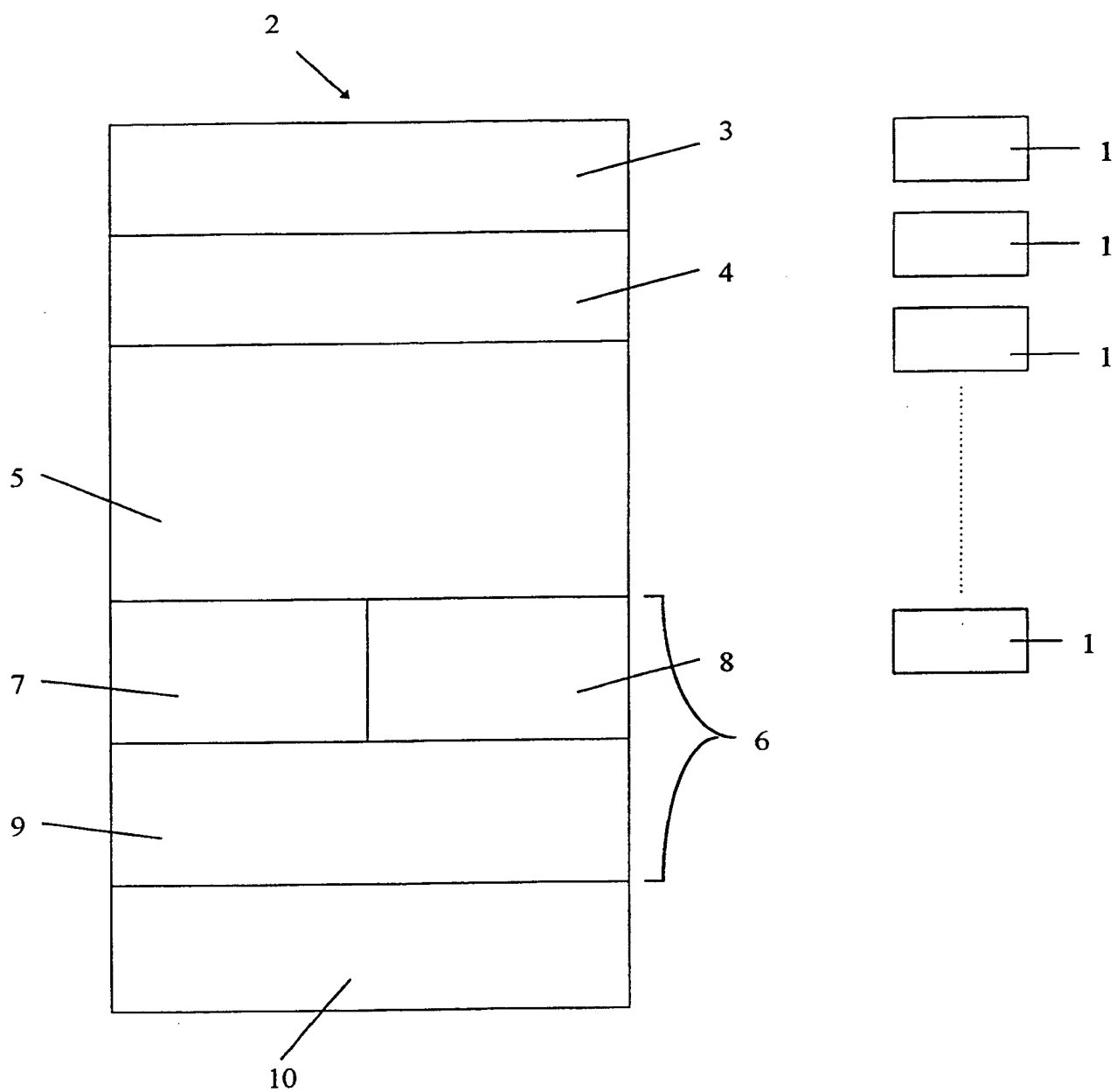
34. A system according to Claim 33, wherein a response of the reader is varied in dependency upon the number of times a particular identification means has been interrogated by the reader.

35. A method of providing entertainment or educational information or searching comprising the steps of: providing one or more items with detectable identification means; detecting an item; interrogating the item and identifying the item from the identification means; and providing information in response to the identification of an item.

36. A method according to Claim 35, wherein the step of providing information comprises providing a signal operable to control a mechanism.

37. A method according to Claim 35 or 36, wherein a reader is operable to interrogate the item and identify the item from the identification means, the method comprising the further step of programming the reader to search for a specific item.

FIGURE 1



PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference I13172W0-LH/sd	FOR FURTHER ACTION see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below.	
International application No. PCT/GB 00/ 00710	International filing date (day/month/year) 29/02/2000	(Earliest) Priority Date (day/month/year) 15/03/1999
Applicant NATIONAL UNIVERSITY OF SINGAPORE et al.		

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 4 sheets.



It is also accompanied by a copy of each prior art document cited in this report.

1. Basis of the report

- a. With regard to the **language**, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.



the international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

- b. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international search was carried out on the basis of the sequence listing :



contained in the international application in written form.



filed together with the international application in computer readable form.



furnished subsequently to this Authority in written form.



furnished subsequently to this Authority in computer readable form.



the statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.



the statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished

2. ☐ **Certain claims were found unsearchable** (See Box I).

3. ☐ **Unity of Invention is lacking** (see Box II).

4. With regard to the **title**,



the text is approved as submitted by the applicant.



the text has been established by this Authority to read as follows:

5. With regard to the **abstract**,



the text is approved as submitted by the applicant.



the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. The figure of the **drawings** to be published with the abstract is Figure No.



as suggested by the applicant.



because the applicant failed to suggest a figure.



because this figure better characterizes the invention.

1



None of the figures.

Box III TEXT OF THE ABSTRACT (Continuation of item 5 of the first sheet)

The abstract is changed as follows:

line 2, 3, 7, 9: after 'means' insert '(1)';
line 2: after 'reader' insert '(2)';
line 4: after 'means' insert '(4)'.

INTERNATIONAL SEARCH REPORT

International Application No.

GB 00/00710

A. CLASSIFICATION OF SUBJECT MATTER
 IPC 7 G06K7/10 G09B5/06

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 G06K G09B

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X A	<p>US 5 661 470 A (KARR GERALD S) 26 August 1997 (1997-08-26)</p> <p>abstract column 1, line 4 -column 2, line 48 column 7, line 45 - line 50 --- -/--</p>	<p>1-5, 10, 13-17, 19, 20, 25-27, -- 33-35 11, 12, 18, 22, 23, 28-30</p>

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

* Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&" document member of the same patent family

Date of the actual completion of the international search

19 April 2000

Date of mailing of the international search report

27/04/2000

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INTERNATIONAL SEARCH REPORT

International Application No

GB 00/00710

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	GB 2 117 160 A (GARDEL WILLIAM; MIZOULE HENRI) 5 October 1983 (1983-10-05)	1,2,8, 13-17, 19,20, 22,23, 26,27, 33,34 18
A	abstract column 1, line 3 -column 2, line 76 figures 1,3 ---	
X	US 5 415 553 A (SZMIDLA ANDREW) 16 May 1995 (1995-05-16)	1,2,6,7, 13-20, 22,24, 26,27, 33,34 11,12, 28,29
A	abstract column 1, line 24 -column 3, line 19 figures 1-3 ---	
X	US 4 729 564 A (KUNA WAYNE A ET AL) 8 March 1988 (1988-03-08)	1,2,6,7, 11-17, 19,20, 22-24, 26,27, 29,31-34 18
A	abstract column 1, line 39 -column 3, line 45 figures 1,3 ---	
X	US 4 955 000 A (NASTROM HARVEY J) 4 September 1990 (1990-09-04)	1,2,9, 13-16, 21,30, 33-35 11,12, 17,18,20
A	abstract column 1, line 10 -column 3, line 35 figure 1 ---	
X	US 4 862 160 A (EKCHIAN JACK A ET AL) 29 August 1989 (1989-08-29)	1-4,10, 13-18, 20,21, 26-28, 33-35 5,11,12, 22,29
A	abstract column 1, line 58 -column 2, line 40 column 3, line 8 - line 37 figures 1,2 -----	

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

P GB 00/00710

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
US 5661470	A	26-08-1997	NONE	
GB 2117160	A	05-10-1983	FR 2520247 A DE 3302492 A IT 1151985 B	29-07-1983 04-08-1983 24-12-1986
US 5415553	A	16-05-1995	GB 2273388 A, B	15-06-1994
US 4729564	A	08-03-1988	GB 2186415 A JP 62266089 A	12-08-1987 18-11-1987
US 4955000	A	04-09-1990	JP 63075586 A	05-04-1988
US 4862160	A	29-08-1989	US 4673932 A AU 615486 B AU 2415688 A AU 577814 B AU 3712784 A CA 1251273 A CA 1277748 A DE 3447599 A FR 2557714 A GB 2152335 A, B GB 2191368 A, B JP 60215275 A ZA 8409989 A	16-06-1987 03-10-1991 27-01-1989 06-10-1988 04-07-1985 14-03-1989 11-12-1990 12-09-1985 05-07-1985 31-07-1985 09-12-1987 28-10-1985 30-04-1986

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Our ref
113172WO-LH/ATB/se

Your ref

Date
27 June, 2000

No. of additional sheets: 5 Original Follows: YES with enclosures: YES
PLEASE CONFIRM SAFE RECEIPT BY FACSIMILE ☐ YES ☒ NO

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Dear Sirs,

Re: International Application No. PCT/GB00/00710
National University of Singapore *et al*
Our Ref: 113172WO

We refer to the international search report issued in connection with the above Application on 27th April, 2000, and file herewith amended Claims 1 to 37 to replace those originally filed with the Application.

Claims 2, 7, 8, 11 and 28 have been deleted, Claims 1, 2 and 11 have been replaced by amended Claim 1, Claims 3 to 6, 9, 10, 12 to 27 and 29 to 35 have been renumbered as Claims 2 to 8, 10 to 13 and 20 to 37 respectively but are otherwise unchanged, and new Claims 9, 14 to 19 have been added.

Please confirm safe receipt of the postal copy of this facsimile by returning the copy letter enclosed therewith, duly endorsed.

Yours faithfully,

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VAT Registration No. GB-110 0242 58

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CLAIMS:

1. An educational tool, search tool or entertainment system comprising one or more identification means each associated with an item, the identification means comprising programmable machine-readable identification information, a reader for detecting and interrogating the identification means to identify the item associated therewith and processing means operable to react in a predetermined manner to the identification of a detected item.
2. A system according to Claim 1, wherein the machine-readable identification information is held on a radio frequency transponder.
3. A system according to Claim 2, wherein the radio frequency transponder is a passive radio frequency transponder.
4. A system according to Claim 2, wherein the radio frequency transponder is an active radio frequency transponder.
5. A system according to any preceding claim, wherein the machine-readable identification information is held on an optically (including infrared and ultraviolet) interrogatable medium.
6. A system according to any preceding claim, wherein the machine-readable identification information is held in a sonic or ultrasonic transmitter.
7. A system according to any preceding claim, wherein the machine-readable identification information is held in an RF (including microwave and millimetrewave) transceiver.

8. A system according to any preceding claim, wherein programming means are provided to programme the machine-readable identification information for the identification means.

9. A system according to Claim 8, wherein the programming means are operable to programme the machine-readable identification information for more than one identification means.

10. A system according to any preceding claim, wherein the reader comprises means to read machine-readable identification information.

11. A system according to any preceding claim, wherein the reader incorporates the processing means.

12. A system according to any preceding claim, wherein the reader incorporates a data storage unit.

13. A system according to Claim 11, wherein the processing means includes software to cause the system to react in a different manner to the identification of respective items.

14. A system according to Claim 10, comprising a plurality of identification means, wherein the reader is operable to detect more than one identification means.

15. A system according to Claim 14 wherein the processing means includes software to cause the system to react in a predetermined manner to the detection of more than one identification means.

16. A system according to Claim 14 or 15, wherein the reader is operable to count the number of identification means detectable thereby.

17. A system according to Claim 16, wherein the processing means includes software to cause the system to react in a manner that is dependent upon the number of identification means detected.

18. A system according to any one of Claims 14 to 16, wherein the reader is operable to establish the order in which multiple identification means are detected.

19. A system according to Claim 18, wherein the processing means includes software to cause the system to react in a predetermined manner to the order in which multiple identification means are detected.

20. A system according to any preceding claim, wherein the reader incorporates a user interface.

21. A system according to Claim 20, wherein the user interface includes a video display operable to display information based on the identity of a detected item.

22. A system according to Claim 20 or 21, wherein the user interface includes an audio processing unit operable to announce or announce information based on the identity of a detected item.

23. A system according to any one of Claims 20 to 22, wherein the user interface includes a data input device.

24. A system according to any preceding claim, wherein a personal computer is associated with the reader to provide the processing means and data storage in addition to or instead of the reader.

25. A system according to any preceding claim, wherein the reader is a portable reader.

26. A system according to any preceding claim, wherein the reader is a toy.

27. A system according to any preceding claim, wherein the identification means is provided in the form of a label attachable to an item.

28. A system according to any preceding claim, wherein the identification means is locatable in an item.

29. A system according to any preceding claim, wherein the reader includes a response activation unit which is operable upon detection of an item.

30. A system according to any one of Claims 1 to 28, wherein the reader is operable to activate a response activation unit associated with the reader upon detection of an item.

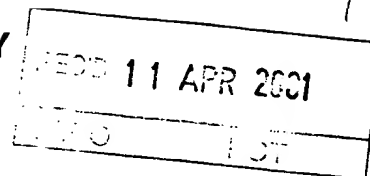
31. A system according to Claim 8 or 9, wherein the reader includes the programming means.

32. A system according to any preceding claim, wherein the item is a person.

34. A system according to Claim 33, wherein a response of the reader is varied in dependency upon the number of times a particular identification means has been interrogated by the reader.



36. A method according to Claim 35, wherein the step of providing information comprises providing a signal operable to control a mechanism.

[illegible]



INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference I13172WO-LH/sd		FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/GB00/00710	International filing date (day/month/year) 29/02/2000	Priority date (day/month/year) 15/03/1999	
International Patent Classification (IPC) or national classification and IPC G06K7/10			
Applicant NATIONAL UNIVERSITY OF SINGAPORE et al.			
<p>1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of 7 sheets, including this cover sheet.</p> <p><input checked="" type="checkbox"/> This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).</p> <p>These annexes consist of a total of 13 sheets.</p>			
<p>3. This report contains indications relating to the following items:</p> <ul style="list-style-type: none"> I <input checked="" type="checkbox"/> Basis of the report II <input type="checkbox"/> Priority III <input checked="" type="checkbox"/> Non-establishment of opinion with regard to novelty, inventive step and industrial applicability IV <input checked="" type="checkbox"/> Lack of unity of invention V <input checked="" type="checkbox"/> Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement VI <input type="checkbox"/> Certain documents cited VII <input checked="" type="checkbox"/> Certain defects in the international application VIII <input checked="" type="checkbox"/> Certain observations on the international application 			
Date of submission of the demand 13/10/2000		Date of completion of this report 05.04.2001	
Name and mailing address of the international preliminary examining authority:  European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465		Authorized officer Heusler, N Telephone No. +49 89 2399 2359 	

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT**

International application No. PCT/GB00/00710

I. Basis of the report

1. With regard to the **elements** of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17)*):

Description, pages:

3,6,8	as originally filed		
1,2,4,5,5a,7,7a	as received on	26/03/2001	with letter of 19/03/2001

Claims, No.:

1-36	as received on	26/03/2001	with letter of 19/03/2001
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Drawings, sheets:

1	as originally filed		
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2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT**

International application No. PCT/GB00/00710

- ☐ the description, pages:
- ☐ the claims, Nos.:
- ☐ the drawings, sheets:

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)):

(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)

6. Additional observations, if necessary:

III. Non-establishment of opinion with regard to novelty, inventive step and industrial applicability

1. The questions whether the claimed invention appears to be novel, to involve an inventive step (to be non-obvious), or to be industrially applicable have not been examined in respect of:

☐ the entire international application.

☒ claims Nos. 1,2,31,32.

because:

☐ the said international application, or the said claims Nos. relate to the following subject matter which does not require an international preliminary examination (*specify*):

☒ the description, claims or drawings (*indicate particular elements below*) or said claims Nos. are so unclear that no meaningful opinion could be formed (*specify*):
see separate sheet

☒ the claims, or said claims Nos. 1,2,31,32 are so inadequately supported by the description that no meaningful opinion could be formed.

☐ no international search report has been established for the said claims Nos. .

2. A meaningful international preliminary examination cannot be carried out due to the failure of the nucleotide and/or amino acid sequence listing to comply with the standard provided for in Annex C of the Administrative Instructions:

☐ the written form has not been furnished or does not comply with the standard.

☐ the computer readable form has not been furnished or does not comply with the standard.

IV. Lack of unity of invention

1. In response to the invitation to restrict or pay additional fees the applicant has:

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No. PCT/GB00/00710

- ☐ restricted the claims.
 - ☐ paid additional fees.
 - ☐ paid additional fees under protest.
 - ☐ neither restricted nor paid additional fees.
2. ☒ This Authority found that the requirement of unity of invention is not complied and chose, according to Rule 68.1, not to invite the applicant to restrict or pay additional fees.
3. This Authority considers that the requirement of unity of invention in accordance with Rules 13.1, 13.2 and 13.3 is
- ☐ complied with.
 - ☒ not complied with for the following reasons:
see separate sheet
4. Consequently, the following parts of the international application were the subject of international preliminary examination in establishing this report:
- ☒ all parts.
 - ☐ the parts relating to claims Nos. .

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes:	Claims	3-30,33-36
	No:	Claims	
Inventive step (IS)	Yes:	Claims	3-30,33-36
	No:	Claims	
Industrial applicability (IA)	Yes:	Claims	3-30,33-36
	No:	Claims	

2. Citations and explanations
see separate sheet

VII. Certain defects in the international application

The following defects in the form or contents of the international application have been noted:
see separate sheet

VIII. Certain observations on the international application

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT**

International application No. PCT/GB00/00710

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:
see separate sheet

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT - SEPARATE SHEET**

International application No. PCT/GB00/00710

The following documents are cited:

D1: US - A - 5 735 742 not cited in the International Search Report
D2: WO - A - 87 / 02 165 not cited in the International Search Report
D3: US - A - 4 729 564

Ad IV - lack of unity

The application comprises two different concepts. The first concept (**claims 1, 31**) relates to establishing the order in which multiple items are detected, while the second concept (**claims 3, 33**) provide a counter for storing the number of times a particular interrogation means has been interrogated. These concept have in common that they relate to identifying items by providing machine-readable identification means. This concept is, however, not inventive, since it is very well known in the art since a long time, see for example D1 and D2. Since the subject matter claimed by the above listed four claims is not linked by a single general inventive concept, the requirement of unity (Rule 13 PCT) is not met.

Ad V.2 - novelty, inventive step; citations and explanations

1. The application **relates to** identification of objects by implementing an identification means (for example, a RF transponder tag) comprising machine-readable identification information into each object. As stated above (item IV), the application comprises two different concepts.
2. The first concept (**claim 1, 31**) is not originally disclosed. The description (page 5, first paragraph; 4th embodiment) merely describes that the reader teaches children to bring letters in the correct order. However, it is not disclosed that the order is "established".

Moreover this feature lacks clarity (see below, VIII 5.).

For these reasons no opinion can be given as to novelty and the inventive step of **claims 1, 2, 31 and 32**. The following opinion concerning the dependent claims is valid as long as these claims do not depend on one of claims 1, 2, 31 or 32.

3. The second concept solves the **problem** to find out how many times one specific item has been interrogated. The **solution** is to implement a counter into the reader or the identification device.
4. D1 and D2 are cited as examples of documents disclosing object identification using machine readable information. D1 describes monitoring gaming chips in a casino; each chips has a transponder tag. In D2 railroad tank cars are identified using transponders.

5. D3 is the only document cited in the International Search Report as being relevant for original claim 31 on which present **claims 3 and 33** are based. This document describes an educational tool which uses a synthetic voice to request game cards from a child. The child should insert the correct card; the device uses bar codes printed on the cards for checking whether the child found the right card.

The feature of a counter for checking how many times one specific item has been detected is not disclosed or suggested by any of the documents from the International Search Report. Neither D1 nor D2 disclose this feature.

Ad VII. - certain defects (form and content, Rules 5 - 7 PCT)

1. The independent claims are not in the two-part-form (Rule 6.3 (b) PCT).
2. The claims contain no reference signs (Rule 6.2 (b) PCT).
3. The relevant documents (D1, D2 and D3) are not acknowledged in the description (Rule 5.1 (a) PCT).
4. The description has not been adapted to the claims (Rule 5.1 (a) PCT).
5. Rule 11.8 PCT is not met.
6. **Claim 15** does not comply with Rule 6.4 (c) PCT (claim order).
7. Some claims do not comply with Rule 6.4 (a) 3rd sentence PCT (claim dependency).

Ad VIII. - clarity, conciseness, support by the description (Art. 6 PCT):

1. As to **claims 8 and 11**: It is not clear whether the terms in brackets have a limiting effect.
2. The difference between **claims 5 and 11** is unclear; therefore these claims lack conciseness.
3. Line 2 of **claims 12** contains a printing error ("programme").
4. Rule 6.1 (a) PCT is not met (four independent and too many dependent claims).
5. The word "establish" in **claims 1 and 31** lacks clarity. Does it mean that the order is detected, or are the detected items sorted (i.e. the order is set / restored)?

"An educational tool, entertainment system or search tool"

THIS INVENTION relates to an educational tool, entertainment system or search tool for domestic or industrial applications. More particularly, the invention involves the application of automatic identification systems such as radio frequency (RF) identification, barcodes, RF/microwave/millimetrewave transceivers, sonic, ultrasonic and optical (including infrared and ultraviolet) transmission systems in educational tools, search tools and entertainment systems such as themed areas or toys.

The ability to impart educational information or provide entertainment can be enhanced by introducing a level of interactivity between an individual who is to be educated or entertained and the educator or entertainer. However, such an enhanced educational or entertainment experience has hitherto only been possible or readily achieved using human educators or entertainers.

It is an object of the present invention to overcome this problem.

Accordingly, one aspect of the present invention provides an educational tool, search tool or entertainment system comprising a plurality of identification means each associated with a respective item, the identification means comprising programmable machine-readable identification information, a reader for detecting and interrogating the identification means to identify the respective items associated therewith, the reader being operable to establish the order in which the multiple identification means are detected, and processing means operable to react in a predetermined manner to the identification of the detected item.

Another aspect of the present invention provides an educational tool, search tool or entertainment system comprising one or more identification means each associated with an item, the identification means comprising programmable machine-readable identification information, a reader for detecting and interrogating the identification means to identify the item associated therewith, the reader and/or the identification means including a counter incrementable each time a particular identification means is interrogated by the reader to provide information concerning the number of times a particular identification means has been interrogated by the reader, and processing means operable to react in a predetermined manner to the identification of the detected item.

In order that the present invention may be more readily understood, it will now be described with reference to the accompanying figure which shows a schematic illustration of a system embodying the present invention.

Referring to Figure 1, a system not embodying the present invention consists of a number of identification labels 1 each associated with a particular item and a reader 2 for detecting and interrogating the labels to identify the item associated therewith.

The identification labels 1 may be but are not limited to:

1. Passive/active radio frequency transponders operating in the near field / far field region.
2. Self-contained RF (including microwave and millimetrewave), optical (including infrared and ultraviolet) or sonar transmission systems with/without on/off functions.
3. Barcodes.
4. Wired / contact transmission systems.

The user interface 6 may include but is not restricted to a keyboard 9, a video display 7 and an audio device 8 to display or announce the information as required in the chosen application. The user interface 6 can accept data input through the keyboard interface 9. The user interface may also be provided with a standard P.C. interface. The reader 2 may also include a response activation unit 10. The response unit 10 incorporates a mechanism operable to react in a predetermined manner to information from the information processing unit. The mechanism may be mechanical in nature but can also emit a visual or audible signal. The response unit 10 need not necessarily be part of the reader 2 but can be associated therewith. For example, the response unit 10 could be located within a toy as part of a mechanism in the toy, the reader 2 being capable of sending a signal to the response unit 10 to activate the response unit 10.

In one arrangement not embodying the system, a plurality of items are each tagged with a respective label 1. When brought to the reader 2, the reader 2 detects the label and reads identification information held on the label and announces, through the audio device 8, the name of the item, the name of the item being the information corresponding to the item tagged with that label 1.

In a second arrangement not embodying the invention, the reader 2 can give a brief description of the item tagged with the label. The reader 2 can also display such information if equipped with a video display 7.

In a third arrangement not embodying the invention, the reader 2 can be configured in the form of a kiddy teacher toy (i.e. kiddy Professor) and

announce or display the identity or type of an item or can announce that there is more than one item.

In a fourth arrangement not embodying the invention, the reader 2 can count and announce and/or display the number or items. In a first embodiment of the invention, this can be used as a tutor to teach spelling by asking children to bring letters (each of which is tagged with a separate label 1) one by one in the correct order and giving necessary instructions.

In a fifth arrangement not embodying the invention, the parents or a teacher can program the labels 1 and the reader 2 suitably and attach the labels to various household items and give a portable reader 2 to a child to explore by finding, identifying and learning about the household items.

In a sixth arrangement not embodying the invention, the reader 2 is in the form of or contained within a toy and the labels 1 can be used as a switch to direct the reader 2 to activate an appropriate mechanism in the response activation unit 10 in the toy.

In a seventh arrangement not embodying the invention, household or industrial items are tagged with labels having identification codes specific to each item. Cross-referencing information linking a particular item to a particular identification code held on a label is stored in the information storage unit 5 of the reader 2. A user, who wishes to search for and locate an item, can enter a desired tagged item or identification code through the user interface unit 6 and move around with the reader 2 to obtain responses from tagged items. Once the reader 2 detects the identification code of the item being searched for,

5a

the reader 2 will provide response via the response activation unit 10. Thus, the system provides a search tool with which a user can search for and locate tagged items in both domestic and industrial environments.

In a second embodiment of the invention, the reader includes one or more dedicated counters which are incremented each time a particular label is read by the reader 2. Thus, a count of the number of times a particular label 1 has been

memory 5 of the reader 2 on that particular toy is made available when the label 1 is detected and identified by the reader 2. The reader 2 can be attached to or contained in a big toy (i.e. a kiddy Professor). The child can then take toys of their choice towards the reader 2. Once within reading range, the reader 2 will announce and/or display the relevant information of that toy. When more than one toy is brought near the reader 2, the reader 2 will announce and/or display the total number of toys within its reading range. In this way, the child will learn to pronounce, spell and count. The reader 2 can also be set such that there is a revision test for the child. In a fourth embodiment of the invention, the reader 2 will announce and/or display the information of a toy that it previously detected and the child has to bring the relevant toy to the reader 2. The reader will indicate if the child answers correctly. Alternatively, or in addition thereto, the reader 2 will announce the name of the toy and the child will be asked to spell.

In another arrangement not embodying the invention, a portable reader 2 is provided and a user can attach or contain a label 1 in any item of their interest. The information on the item tagged by the label 1 is then entered into the memory 5 by the user interface 6, thereby updating in the reader 2. With the portable reader 2, the user can move the reader 2 towards any tagged item. The reader 2 will then announce and/or display the information on any item tagged by a label 1 once the label 1 has been detected. This application is suitable for a child to learn about new things in its environment (i.e. the names of different items in a household). This application may also serve as an educational tool for adults, for example, electronically labelling the different trees in a botanical garden will enable adults to learn more about the trees.

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The labels 1 can be used to act as means to activate an "ON" or "OFF" switch in the reader 2. In this case, a toy having an electrical, mechanical, video or audio mechanism will incorporate the reader 2. Once an appropriate

CLAIMS:

1. An educational tool, search tool or entertainment system comprising a plurality of identification means each associated with a respective item, the identification means comprising programmable machine-readable identification information, a reader for detecting and interrogating the identification means to identify the respective items associated therewith, the reader being operable to establish the order in which the multiple identification means are detected, and processing means operable to react in a predetermined manner to the identification of the detected item.
2. A tool or system according to Claim 1, wherein the processing means includes software to cause the system to react in a predetermined manner to the order in which the multiple identification means are detected.
3. An educational tool, search tool or entertainment system comprising one or more identification means each associated with an item, the identification means comprising programmable machine-readable identification information, a reader for detecting and interrogating the identification means to identify the item associated therewith, the reader and/or the identification means including a counter incrementable each time a particular identification means is interrogated by the reader to provide information concerning the number of times a particular identification means has been interrogated by the reader, and processing means operable to react in a predetermined manner to the identification of the detected item.
4. A tool or system according to Claim 3, wherein a response of the reader is varied in dependency upon the number of times a particular identification means has been interrogated by the reader.

5. A tool or system according to any preceding claim, wherein the machine-readable identification information is held on a radio frequency transponder.
6. A tool or system according to Claim 5, wherein the radio frequency transponder is a passive radio frequency transponder.
7. A tool or system according to Claim 5, wherein the radio frequency transponder is an active radio frequency transponder.
8. A tool or system according to any one of Claims 1 to 4, wherein the machine-readable identification information is held on an optically (including infrared and ultraviolet) interrogatable medium.
9. A tool or system according to any one of Claims 1 to 4, wherein the machine-readable identification information is held on a wired or contact transmitter.
10. A tool or system according to any one of Claims 1 to 4, wherein the machine-readable identification information is held in a sonic or ultrasonic transmitter.
11. A tool or system according to any one of Claims 1 to 4, wherein the machine-readable identification information is held in an RF (including microwave and millimetrewave) transceiver.

12. A tool or system according to any preceding claim, wherein programming means are provided to programme the machine-readable identification information for the identification means.

13. A tool or system according to any preceding claim, wherein the reader incorporates the processing means.

14. A tool or system according to any preceding claim, wherein the reader incorporates a data storage unit.

15. A tool or system according to Claim 13, wherein the processing means includes software to cause the system to react in a different manner to the identification of respective items.

16. A tool or system according to any preceding claim, wherein the reader incorporates a user interface.

17. A tool or system according to Claim 16, wherein the user interface includes a video display operable to display information based on the identity of a detected item.

18. A tool or system according to Claim 16 or 17, wherein the user interface includes an audio processing unit operable to announce information based on the identity of a detected item.

19. A tool or system according to Claim 17 or 18, wherein the reader is operable to: select an item that the reader has previously detected; announce or display information based on the identity of the selected item; and react in a

predetermined manner in dependency upon whether the next item identified by the reader is the selected item.

20. A tool or system according to any one of Claims 16 to 19, wherein the user interface includes a data input device.

21. A tool or system according to any preceding claim, wherein a personal computer is associated with the reader to provide the processing means and data storage in addition to or instead of the reader.

22. A tool or system according to any preceding claim, wherein the reader is a portable reader.

23. A tool or system according to any preceding claim, wherein the reader is a toy.

24. A tool or system according to any preceding claim, wherein the or each identification means is provided in the form of a label attachable to an item.

25. A tool or system according to any preceding claim, wherein the or each identification means is locatable in an item.

26. A tool or system according to any preceding claim, wherein the reader includes a response activation unit which is operable upon detection of an item.

27. A tool or system according to any one of Claims 1 to 25, wherein the reader is operable to activate a response activation unit associated with the reader upon detection of an item.

28. A tool or system according to any preceding claim, wherein the reader is operable to count the number of items which are detectable by the reader and provide the count information to a user interface associated with the reader.

29. A tool or system according to Claim 12, wherein the reader includes the programming means.

30. A tool or system according to any preceding claim, wherein the item is a person.

31. A method of providing entertainment or educational information or searching comprising the steps of: providing a plurality of items with detectable identification means, the detectable identification means comprising programmable machine-readable identification information; detecting multiple items and establishing the order in which the multiple items are detected; interrogating the items and identifying the items from the identification means; and providing information in response to the identification of an item.

32. A method according to Claim 31, further comprising the step of reacting in a predetermined manner to the order in which the multiple identification means are detected.

33. A method of providing entertainment or educational information or searching comprising the steps of: providing one or more items with detectable identification means the detectable identification means comprising programmable machine-readable identification information; detecting an item; interrogating the item and identifying the item from the identification means; providing a counter incrementable each time a particular identification means is interrogated to provide information concerning the number of times a particular

identification means has been interrogated; and providing information in response to the identification of the item.

34. A method according to Claim 33, further comprising the step of varying the response in dependency upon the number of times a particular identification means has been interrogated.

35. A method according to any one of Claims 30 to 34, wherein the step of providing information comprises providing a signal operable to control a mechanism.

36. A method according to any one of Claims 30 to 35, wherein a reader is operable to interrogate the item and identify the item from the identification means, the method comprising the further step of programming the reader to search for a specific item.

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